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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JARI SIRVIO and OLLI SALMELA

Appeal 2009-002705
Application 10/500,056
Technology Center 3600

Decided: October 15, 2009

Before LINDA E. HORNER, STEFAN STAICOVICI, and
KEN B. BARRETT, *Administrative Patent Judges*.

STAICOVICI, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Jari Sirvio *et al.* (Appellants) appeal under 35 U.S.C. § 134 from the Examiner's decision rejecting claims 8-13 and 15-17. Claims 1-7, 14, and 18 have been canceled. We have jurisdiction over this appeal under 35 U.S.C. § 6 (2002).

THE INVENTION

Appellants' invention relates to a system for steering a watercraft including a main propulsion device 3 activated by diesel engines 4 and shaft 5 and steering propulsion devices 2 located close to the outboard 6 of the watercraft on both sides of the main propulsion device 3. Spec. 2, ll. 16-18; Spec. 4, l. 28 through Spec. 5, l. 2; and figs. 1A and 1B.

Claim 8 is representative of the claimed invention and reads as follows:

8. A water craft having an aft region and first and second opposite sides and comprising:
 - a hull,
 - a cargo deck at least in the aft region of the water craft and above which the hull defines a cargo space for accommodating trucks and other wheeled cargo,
 - a main propulsion means located in the aft region of the water craft for propelling the craft in a forward direction, and
 - at least first and second steering propulsion devices located in the aft region of the water craft to the first and second sides respectively of the main propulsion means, each steering propulsion

device being selectively variable with respect to its propulsion direction, whereby steering of the water craft is continuously provided by the steering propulsion devices without a separate rudder means functionally connected to the main propulsion means,

wherein the steering propulsion devices are installed below the cargo deck,

and wherein the output required by the steering propulsion devices is in all less than 50% of the common shaft output of the main propulsion means and of the steering propulsion devices.

THE REJECTIONS

The Examiner relies upon the following as evidence of unpatentability:

Oshima (translation)	JP 090142391 A	Jun. 3, 1997
Tigges	CA 2 373 462 A1	Nov. 16, 2000

Appellants seek review of the Examiner's rejection of claims 8-13 and 15-17 under 35 U.S.C. § 103(a) as unpatentable over Tigges and Oshima.

THE ISSUE

The Examiner found that Tigges discloses all the features of independent claim 8, with the exception of first and second steering propulsion devices located in the aft region of the watercraft to the first and second sides of the main propulsion means. Ans. 3. The Examiner further found that Oshima discloses a steering propulsion system including two rotatable steering propulsion units located in the aft region of the watercraft

on the first and second sides of the main propulsion means. *Id.* The Examiner concluded that it would have been obvious to a person of ordinary skill in the art to have substituted the propulsion system of Tigges with the arrangement of Oshima in order to provide a “high output, low maintenance propulsion system and more positive steering” in addition to reduction of underwater noise. Ans. 4, 6, and 7.

Appellants argue that the Examiner has not provided a plausible reason to combine the teachings of Tigges and Oshima. App. Br. 12, 13. Specifically, Appellants argue that the Examiner has not shown any problem that may affect the ship of Tigges and that would be alleviated by the propulsion system of Oshima. App. Br. 12. Appellants further argue that Tigges’s cargo ship is exclusively propelled by rudder propellers, without a main propulsion means between the rudder propellers, and that the hull is “optimized for a rudder propeller.” *Id.* Hence, according to Appellants, a person of ordinary skill in the art would not have been motivated to modify the propulsion system of Tigges to include the propulsion system of Oshima, as suggested by the Examiner. App. Br. 12, 13.

Accordingly, the issue presented for our consideration is the following:

Have Appellants demonstrated that the Examiner erred in determining that the combined teachings of Tigges and Oshima would have prompted a person of ordinary skill in the art to substitute the propulsion system of Tigges with that of Oshima to include a main propulsion means and two rotatable steering propulsion units located on the first and second sides of the main propulsion means?

SUMMARY OF DECISION

We REVERSE.

PRINCIPLES OF LAW

Obviousness

"Section 103 forbids issuance of a patent when 'the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.'" *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art, (2) any differences between the claimed subject matter and the prior art, (3) the level of skill in the art, and (4) where in evidence, so-called secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966). *See also KSR*, 550 U.S. at 407 ("While the sequence of these questions might be reordered in any particular case, the [*Graham*] factors continue to define the inquiry that controls.")

The Supreme Court stated that in cases involving more than the simple substitution of one known element for another or the mere application of a known technique to a piece of prior art ready for the improvement, it will be necessary to "determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue." *KSR* at 418. The Court noted that "[t]o facilitate review, this analysis should be made explicit." *Id.* (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) ("[R]ejections on obviousness grounds

cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness").

OPINION

Rejections based on 35 U.S.C. § 103 must rest on a factual basis. In making such a rejection, the Examiner has the initial duty of supplying the requisite factual basis and may not, because of doubts that the invention is patentable, resort to speculation, unfounded assumptions or hindsight reconstruction to supply deficiencies in the factual basis. *In re Warner*, 379 F.2d 1011, 1017 (CCPA 1967).

The Examiner asserts that:

... it would have been obvious to one having ordinary skill in the art at the time of the invention to substitute for the propulsion/steering means in Tigges with an arrangement including a main propulsion means located in the aft region of the watercraft for propelling the watercraft in a forward direction and first and second steering propulsion devices located in the aft region of the watercraft on the first and second sides of the main propulsion means generally as taught by Oshima.
...

The advantage of having a high output, low maintenance propulsion system and more positive steering provided by rotatable steering propellers would provide the motivation to modify the propulsion-steering arrangement of Tigges et al with a propulsion-steering arrangement as taught by Oshima. The reduction in noise created by the propulsion unit would be just another benefit.

Ans. 3, 4, and 7.

We find the Examiner's purported reason for modifying the rudder propeller system of Tigges to include the propulsion system of Oshima, (a main propulsion means and two rotatable steering propulsion units located on the first and second sides of the main propulsion means), deficient because the overall design of Tigges's hull is *matched* for use with rotatable rudder propellers.

It is our finding that Tigges discloses a watercraft for cargo and passengers including a bow 2, a stern (located opposite the bow 2), a bridge 1, a main car deck 10, a weather deck 9, short double rudder propellers 6 located on opposite sides of the centerline of the watercraft, and a skeg 8 located in front of each double rudder propeller 6. Tigges 8, ll. 12-33 and figs. 1 and 5.¹ Tigges further discloses that the shape of the bow and of the stern, the size and arrangement of the rudder propellers, and the skegs are *matched to one another* such as to optimize the performance of the watercraft. Tigges 9, ll. 4-9. Specifically, Tigges discloses that the skegs 8 are shaped and dimensioned so as to form a separation-free, decelerated flow against the rudder propellers 6, hence increasing propulsion efficiency of the rudder propellers and providing good course-holding stability. Tigges 3, l. 22 through 4, l. 14. Hence, a person of ordinary skill in the art would have readily recognized that because the overall shape and dimensions of Tigges' hull, skegs, and rudder propellers (propulsion system) are *matched to one another*, the watercraft of Tigges is specifically designed to use a propulsion system having short double rudder propellers 6 located on opposite sides of the centerline of the watercraft.

¹ Skegs 8 are labeled as skegs 19 in figure 5. Tigges 9, ll. 32-35, fig. 5.

Although at first glance, substituting the propulsion system of Tigges with that of Oshima appears to be merely “the simple substitution of one known element for another,” (*see* KSR at 417), because the overall shape and dimensions of Tigges’s hull, skegs, and propulsion system are *matched* to one another, we find that a person of ordinary skill would not have been motivated to merely substitute the propulsion system of Oshima for that of Tigges, as proposed by the Examiner. As noted above, matching of the overall shape and dimensions of the hull, skegs, and propulsion system (rudder propellers) provides a separation-free, decelerated flow which increases propulsion efficiency and course-holding stability. However, with respect to the Examiner’s proposed combination, the Examiner has not provided any evidence to show that when substituting the propulsion system of Tigges with that of Oshima a separation-free, decelerated flow would result. In other words, the Examiner has not provided any factual basis to show that when substituting the rudder propellers of Tigges with the propulsion system of Oshima, the overall shape and dimensions of the hull and skegs of Tigges would be *matched* to the propulsion system of Oshima so as to provide a separation-free, decelerated flow in the modified watercraft of Tigges, or that a person of ordinary skill in the art would understand this to be the case. Moreover, without taking into consideration the matching of the overall shape and dimensions of the hull and skegs and the propulsion system, we find that it is not clear that more positive steering is necessarily present in the modified watercraft of Tigges, as suggested by the Examiner. Ans. 7. *See also*, Final Rejection 4, mailed April 17, 2007. We do not find that the Examiner has established a factual basis to show that substituting the propulsion system of Tigges with that of Oshima necessarily

provides more positive steering or that a person of ordinary skill in the art would understand this to be the case.

In conclusion, we find that the modification proposed by the Examiner of substituting the propulsion system of Tigges with that of Oshima, to include a main propulsion means and two rotatable steering propulsion units located on the first and second sides of the main propulsion means, would not have been obvious to the person of ordinary skill in the art. For the above stated reasons, we conclude that the Examiner has not discharged the initial burden of establishing a prima facie case of obviousness of the subject matter of independent claims 8 and 16 or their dependent claims 9-13, 15, and 17. As such, the rejection is reversed. *See In re Fine*, 837 F.2d 1071, 1076 (Fed. Cir. 1988) (If an independent claim is nonobvious under 35 U.S.C. § 103, then any claim dependent therefrom is nonobvious).

CONCLUSION

Appellants have demonstrated that the Examiner erred in determining that the combined teachings of Tigges and Oshima would have prompted a person of ordinary skill in the art to substitute the propulsion system of Tigges with that of Oshima to include a main propulsion means and two rotatable steering propulsion units located on the first and second sides of the main propulsion means.

DECISION

The Examiner's decision to reject claims 8-13 and 15-17 is reversed.

REVERSED

Klh

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